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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,171	04/25/2001	Shigehide Kuhara	2382-17	3658

7590 10/15/2002

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EXAMINER

VARGAS, DIXOMARA

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 10/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/841,171

Applicant(s)

KUHARA, SHIGEHIDE

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

1. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. In regards to claim 6, applicant fails to define the meaning of ID in the specification. One of ordinary skill in the art would not understand what applicant means by ID since there are

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many possible definitions, for example, inner diameter or identification. Clarification is required.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The claims 1-19 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

9. In regards to claim 7, the examiner is unable to determine what are the meets and bounds of the invention as claimed from lines 5-11. The examiner believes that lines 5-11 of claim 7 contains too many grammatical errors that made the claim indefinite, therefore the examiner is unable to properly apply art to the claim. Clarification is required for proper consideration and application of the appropriate art.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-6 and 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Englund et al. (US 5,197,474) in view of Wang et al. (US 5,928,148).

With respect to claims 1 and 11, Englund discloses a magnetic resonance imaging system, as seen on Figure 1, comprising: static magnetic field generating means for generating a static magnetic field containing a uniform region whose magnetic intensity is uniform (Column 4, lines 42-45; Figure 1, #6); a couch movable in a predetermined direction passing through the static magnetic field, an object to be imaged being laid on the couch (Column 4, lines 14-26; Figure 1); a reception multiple RF coil including a plurality of coil members disposed toward the object (Column 1, lines 5-11); position changing means for automatically changing a relative position formed between the couch and the magnet in the predetermined direction in accordance with a length of each of the plurality of coil members detected in the predetermined direction (Column 4, lines 26-45; Column 3, lines 3-21); scanning means for scanning the object by applying given train of pulses to the object at each position changed by the position changing means (Column 1, lines 19-32); reception means for receiving through the multiple RF coils an echo signal that emanates responsively to the application of the train of pulses by the scanning means (Columns 5 and 6, lines 58-61 and 1-5 respectively).

Englund discloses the claimed invention except for the reception processing means for processing, with given processing for reception, the echo signal received by the reception means so that the echo signal is converted into echo data; and image producing means for producing an MR image based on the echo data converted by the reception processing means. Wang discloses said means (Figure 1, #106 and # 104). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Englund for the known purpose of

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transforming the data to a computer readable data and convert the data into a displayable data for a monitor and allow the system user to visualize the signal resulting from the examination for studying the imaged part of the body.

12. With respect to claim 2, Englund discloses the predetermined direction is a longitudinal direction of the couch and the position changing means is composed by means for moving a position of the couch in the longitudinal direction with the static magnetic field generating means fixed (as shown on Figure 1).

13. With respect to claim 3, Englund discloses the position changing means is composed by means for changing the position so that a center position of each of the plurality of coil members in the longitudinal direction agrees with the uniform region of the static magnetic field (Column 5, lines 17-28).

14. With respect to claim 4, Englund discloses the reception processing means includes election means for automatically selecting, from the echo signals received individually by the plurality of coil elements, the echo signal received by a certain coil member located at the center of the uniform region in the longitudinal direction, the selected echo signal being given to the image producing means (Column 5, lines 3-28).

15. With respect to claim 5, Englund discloses the claimed invention except for the selection means including signal level detecting means for detecting a level of the echo signal received by each of the plurality of coil members, and signal selecting means for automatically selecting the echo signal received by the coil member located at the center of the uniform region in the longitudinal direction on the basis of changes in the level of the echo signal detected by the signal level detecting means. It would have been obvious to one of ordinary skill in the art at

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the time the invention was made to modify Englund for the purpose of selecting the signal with the highest amplitude which constitutes the signal of the region of interest of the examined subject and transform the signal into an image of the selected preferred area.

16. With respect to claim 6, Englund discloses the claimed invention except for an ID generating means for generating an ID number inherent to each coil member, the ID producing means being disposed with each of the plurality of coil members, size memorizing means for memorizing a size of each of the plurality of coil members in the longitudinal direction, the size corresponding to the ID number of each coil member generated by the ID generating means, disposal detecting means for identifying each signal line of the plurality of coil members so as to detect a disposal state of the plurality of coil members in the longitudinal direction, and determination means for determining the size by making detection information about the coil disposal state detected by the disposal detecting means refer to the size memorizing means, the position changing means includes means for moving the position of the couch based on the size determined by the determination means, and the reception processing means includes selection means for automatically selecting, from the echo signal received by each of the plurality of coil members, a certain echo signal received by the coil member located at the center of the uniform region in the longitudinal direction on the basis of the size determined by the determination means and the coil disposal state detected by the disposal detecting means, the detected echo signal being given to the image producing means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Englund for the purpose of selecting the signal with the highest amplitude which constitutes the signal of the region of interest of the

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subject with the selected coil that is enable depending on the size of said coil which covers the area to be examined and transform the signal into an image of the selected preferred area.

17. With respect to claim 8, Englund discloses each of the plurality of coil members constituting the multiple RF coils is an array type of RF coil has a plurality of coil elements (Abstract).

18. With respect to claims 9 and 13, Englund discloses the claimed invention except for each of the plurality of coil members constituting the multiple RF coils is a whole-body coil. Wang discloses said body coil (Figure 1, #152). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Englund for the purpose of improving the system by increasing the possible number of body parts or imaging volume to be examine by covering the entire body of the patient.

19. With respect to claim 10, Englund discloses the multiple RF coils is ked to one selected from a group of the object and the couch (Abstract).

20. With respect to claims 12 and 18, Englund discloses the reception RF coil is one in number (Columns 5 and 6, lines 58-61 and 1-5 respectively).

21. With respect to claim 14, Englund discloses the claimed invention except for the train of pulses being set to include the number of encoding steps less than a given number of encoding steps required to reconstruct the MR image by one, and the image producing means is composed of means for performing unfolding processing on a set of the echo data obtained by the reception processing means at every position of the couch changed by the position changing means on the basis of different sensitivity distributions of the plurality of coil members. Wang discloses said means (Figure 1, #106 and # 104). It would have been obvious to one of ordinary skill in the art



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at the time the invention was made to modify Englund for the known purpose of transforming the data to a computer readable data and convert the data into a displayable data for a monitor and allow the system user to visualize the signal resulting from the examination for studying the imaged part of the body by using a faster procedure or improve the scan time.

22. With respect to claim 15, Englund discloses the position changing means is composed of means for moving the couch every half of a length of the reception RF coil in the predetermined direction (as shown on Figures 1 and 4).

23. With respect to claim 16, Englund discloses the position changing means is composed of means for moving the couch to a first couch position and a second couch position, a region to be imaged of the object being located at the first couch position with the region shifted in part from a sensitivity distribution region of the reception RF coil, and the region being located at the second couch position with the region contained entirely in the sensitivity distribution region of the reception RF coil (as shown on Figures 1 and 4).

Englund discloses the claimed invention except for the system further including instruction means for instructing a contrast agent to be injected into the object when the couch is located at the second position. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Englund for the purpose of improving the image quality by adding contrast to the image for differentiating the different aspects of the area examined.

24. With respect to claim 17, see rejection of claims 1 and 16 above.

25. With respect to claim 19, see rejection of claim 1 and 16 above.

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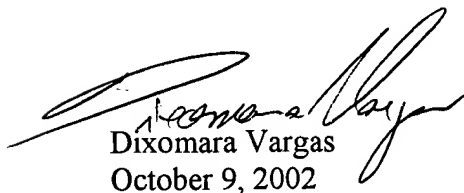
*Conclusion*


26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited at the PTO 892 attached discloses movable bed techniques.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703) 305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.

  
Dixomara Vargas  
October 9, 2002

  
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